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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/522,834	BAHLS, THOMAS	
	Examiner	Art Unit	
	Christopher M. Crutchfield	4144	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 August 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *25-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *25-30,32-43 and 45* is/are rejected.

7)☒ Claim(s) *31 and 44* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 January 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1/.31/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 27 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. This is because it depends from cancelled base claim 2.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. **Claims 25-29, 33, 34, 36, and 39** are rejected under 35 U.S.C. 102(e) as being anticipated by *Hoebeke*, et al. (US Pre Grant Publication No. 2002/0010782 A1).

For claim 25, *Hoebeke*, et al. discloses a method for transmission of a broadcasting information (Abstract) routed to a central communication unit (Figure 3, NAS) to a subscriber connection (Figure 3, PC1 and PC2) assigned to a decentralized communication unit (Figure 3, CPNT) via a communication network, (Figure 3) comprising:

a. Providing a first virtual connection via the central communication unit to a subscriber via the communication network, (Figure 3, VCC1 and VCC2 and Page 2, Paragraph 0023) the first virtual connection adapted for transmission of an information for the subscriber connection (Figure 3 and Page 2, Paragraph 0023 - The virtual circuit connections VCC1 and VCC2 connect the corresponding PC1 and PC2 to the internet).

b. Providing a second virtual connection between the central unit and the decentralized communication unit (Figure 3, MVCC and Page 3, Paragraph 0030 – The multicast data channel [MVCC] connects the CPNT/decentralized communication unit to the NAS/central communications unit [See Fig. 3]).

c. Checking if at least a portion of the broadcasting information is to be transmitted to the subscriber connection, and if the at least portion of the broadcasting information is to be transmitted, then transmitting the at least a portion of the broadcasting information over the second virtual connection to the decentralized communication unit (Paragraph 0030 and Figure 3 – the multicast data destined for both PC1 and PC2 is forwarded to the CPNT only once across the MVCC.)

d. Duplicating the at least a portion of the broadcasting information transmitted in the decentralized communication unit, forwarding the duplicated information to the subscriber connection (Paragraph 0030 – The data is replicated in the CPNT terminal and sent to the destination subscribers).

For claim 26, *Hoebeke*, et al. discloses that the duplicated information is inserted into the first virtual connection and is forwarded to the subscriber connection (Paragraph 0030). (The data sent via the MVCC is then sent to the subscriber PC's via each PC's respective VCC [Paragraph 0030].)

For claim 27, *Hoebeke*, et al. discloses:

a. Detecting in the central communication unit the at least a portion of the broadcasting information to be transmitted (Paragraph 0030). (It is inherent that in directing multicast data along a separate path, the NAS [Figure 3] detects which communications are destined for a multicast broadcast [Paragraph 0030].)

b. Assigning addressing information identifying a number of the subscriber connections to the detected information. (Figure 3 and Paragraph 0030) (The NAS informs the CPNT which PC's have subscribed to the multicast. Then an identifier corresponding to the MVCC pipe is assigned to the data and it is transmitted to the CPMT, [It is inherent that in the use of an ATM virtual channel, [Paragraph 0027] a virtual circuit identifier is assigned to the cell] where the identifier is used to determine which PC's are to receive the multicast and the CMPT then sends the multicast data to each specified PC. [Paragraph 0030])

c. Transmitting the detected information with the assigned addressing information via the second virtual connection to the decentralized communication unit (Paragraph 0030 – See also (b), supra).

c. Duplicating the at least a portion of the broadcasting information transmitted based on the assigned addressing information. (Paragraph 0030 – The CPNT duplicates and distributes the multicast to the PC's specified by the NAS based on the assigned MVCC pipe identifier. – See also (b), supra).

d. Inserting the duplicated information into the first virtual connection. (Paragraph 0030 – The data is replicated in the CPNT terminal and sent to the destination subscribers via their respective VCC's).

For claim 28, *Hoebeke*, et al. discloses a distribution information is stored in the central communication unit, the distribution information indicates the subscriber connection of the decentralized communication unit to which the relevant incoming broadcasting information is to be transmitted, the broadcasting information routed to the central communication unit checked via the stored distribution information as to whether at least a part is to be transmitted to the subscriber connections (Paragraphs 0030-0031). (The NAS/Central Communications Unit, upon the establishment of a Multicast VCC, subsequently sends all associated multicast packets to the CPNT/decentralized communication unit via the MVCC. Therefore, it is inherent that the NAS/Central Communications Unit stores information that indicates the MVCC to which multicasts are to be directed. Further, this information ultimately indicates the subscriber connection of the decentralized unit to which the multicast is to be transmitted by means of the forwarding table of that multicast VCC stored in the CPNT/decentralized communication unit. [Paragraphs 0030-0031]).

For claim 29, *Hoebeke*, et al. discloses an information set is stored in the decentralized communication unit through which the addressing information assigned to the transmitted

broadcasting information is assigned to the connection is a first virtual connection. (Paragraphs 0003 and 0036). (The additional protocol requests that the CPNT/decentralized communication unit associate the first virtual connection [i.e. VCC1 - See Figure 3] with multicast data sent in the MVCC channel [See Figure 3] [Paragraph 0036]. The CPNT then forewords data to the appropriate VCC's [Paragraph 0030]. It is implied that in order to foreword data according to a previous directive that the contents of the directive, including the virtual connection to receive the multicast, are stored in the CPNT.)

For claim 33, *Hoebeke*, et al. discloses a subscriber-individual selection of the at least a part of the broadcasting information is made in the central communication unit via the distribution information being updated as a function of the relevant subscriber-individual selection (Paragraphs 0030 and 0036). (The NAS receives a request from a PC/subscriber to subscribe to a multicast. When a request is received, the distribution information is updated by both sending a message via an Addition Protocol to the CPNT/decentralized communication unit to add the subscriber/connection to the multicast and by, if necessary, establishing a new MVCC and updating the NAS's internal distribution information [Paragraphs 0030 and 0036].)

For claim 34, *Hoebeke*, et al. discloses the subscriber-individual selection is made as part of the IGMP protocol terminated in the central communication unit (Paragraph 0034) and that within the framework of the IGMP protocol, the selection information is transmitted via the decentralized communication unit, (Figure 3, path of the IGMP packet from the PC to the NAS necessarily traverses the CPNT) the selection information is read and evaluated in the decentralized communication unit and via of the evaluation result the information set stored in the decentralized communication unit is updated (Paragraph 0040). (The IGMP protocol is used to subscribe a subscriber/PC to a particular multicast and is terminated in the central communications unit/NAS [Paragraphs 0034 and 0030]. Furthermore, when operating in IGMP

snoop mode the CPNT/decentralized communication unit snoops the IGMP packets and updates its distribution information via the information contained in the IGMP packets [Paragraph 0040].)

For claim 36, *Hoebeke*, et al. discloses the broadcasting information routed to the central communication unit is embodied in accordance with the Internet Protocol or the TCP/IP protocol. (Figure 1, Element IV and Paragraph 0019).

For claim 39, *Hoebeke*, et al. discloses the broadcasting information routed to the central communication unit is transmitted via a higher-level communication network connected to the central communication unit (Figure 1, Element IV and Figure 3, Connection to NAS).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 30, 32, and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Hoebeke*, et al. as applied to claims 25 and 40 above.

For Claim 30, *Hoebeke*, et al. discloses the use of a separate virtual connection for different protocols (Figure 4, AVCC and Paragraph 0035). (The AVCC is used to carry traffic of the AP protocol separately from the traffic sent by other protocols [Figure 4, AVCC and Paragraph 0035]). *Hoebeke*, et al. does not disclose that different transmission protocols are implemented by the first virtual connection and for each transmission protocol implemented via the decentralized communication unit, the second virtual connection set up for the individual transmission protocol between the central and the decentralized communication unit. However, it is officially noted that the use of multiple protocols for network access in DSL environments (Such as PPPOE and straight Ethernet) is well known in the art, as is the fact that a transmission using one protocol cannot be received by a device utilizing a different protocol. Thus it would have been obvious to a person of ordinary skill in the pertinent art that if it is known to use separate virtual connections for different protocols, and if it is further known that the individual PC's/subscribers run different protocols and cannot receive non-native transmissions, that the multicast connections that deliver content to the subscribers running different protocols should be operated on separate multicast channels. Separate virtual connections per multicast protocol can be modified/implemented into the system of *Hoebeke*, et al. by establishing a separate virtual connection between the CPNT and NAS (See Figure 1) for each protocol executed by subscribers/PC's. The motive to execute separate virtual connections per protocol is to allow the CPNT to receive and replicate data to each subscriber without having to engage in protocol translation.

For Claim 32, *Hoebeke*, et al. does not disclose transmission protocol implemented by the subscriber connections is additionally indicated by the distribution information stored in the

central communication unit. However, it is inherent that in the use of the system of claim 30, the transmission protocol used by each subscriber would have to be stored in either (or both) the CPNT or the NAS or the system would be unable to identify which subscribers were to receive the broadcast. Thus it would have been obvious to a person of ordinary skill in the pertinent art that the transmission protocol implemented by the subscriber connections is additionally indicated by the distribution information stored in the central communication unit. Central storage of distribution information can be modified/implemented into the system of *Hoebeke*, et al. by having the NAS store the transmission protocol of the subscribers. The motive to combine central storage of distribution information with the system of *Hoebeke*, et al. is to allow the central communication unit to allow the central communication unit to individually identify which units are to receive multicasts in each protocol and to allow the central communications unit have sufficient information to implement subscriptions/de-subscriptions to a particular multicast.

For Claim 43, *Hoebeke*, et al. discloses the use of a separate virtual connection for different protocols (Figure 4, AVCC and Paragraph 0035). (The AVCC is used to carry traffic of the AP protocol separately from the traffic sent by other protocols [Figure 4, AVCC and Paragraph 0035]). *Hoebeke*, et al. does not disclose the subscriber connections of the decentralized communication unit are embodied such that different transmission protocols are implemented by the first virtual connection, and for each transmission protocol implemented via the decentralized communication unit the second virtual connection is specific to a transmission protocol. However, it is officially noted that the use of multiple protocols for network access in DSL environments (Such as PPPOE and straight Ethernet) is well known in the art, as is the fact that a transmission using one protocol cannot be received by a device utilizing a different protocol. Thus it would have been obvious to a person of ordinary skill in the pertinent art that if it is known to use separate virtual connections for different protocols, and if it is further known

that the individual PC's/subscribers run different protocols and cannot receive non-native transmissions, that the multicast connections that deliver content to the subscribers running different protocols should be operated on separate multicast channels. Separate virtual connections per multicast protocol can be modified/implemented into the system of *Hoebeke*, et al. by establishing a separate virtual connection between the CPNT and NAS (See Figure 1) for each protocol executed by subscribers/PC's. The motive to execute separate virtual connections per protocol is to allow the CPNT to receive and replicate data to each subscriber without having to engage in protocol translation.

8. **Claims 35, 37 and 38** are rejected under 35 U.S.C. 103(a) as being unpatentable over *Hoebeke*, et al. (US Pre-Grant Publication No. 2002/0010782 A1) in view of *Gleeson, et al.* (US Patent No. 5,959,989).

For claim 35, *Hoebeke*, et al. does not disclose but *Gleeson,* et al., from the same or similar field of endeavor, discloses the communication network is embodied as a frame-oriented or a packet-oriented communication network in accordance with a MAC based protocol (Column 13 Lines 5-53) and that the first virtual connections are embodied in accordance with a VLAN protocol (Column 3, Lines 1-14) and a protocol that includes support for spanning tree protocol (Column 16, Lines 55-67). (The first virtual connection between a central communication unit/MND [Figure 2A, Element 228] is made by the colored VLANS [Column 3, Lines 1-14][See for instance the Orange VLAN [i.e. "O", Figure 2A] which connects MND/central communications unit [Element 228] and Subscriber 34]. This connection is made via a LAN running a MAC based protocol [Column 13 Lines 5-53] and using a MAC layer protocol that supports spanning tree protocol [Column 16, Lines 55-67]. Thus it would have been obvious to implement the LAN of *Gleeson,* et al. in the multicast system of *Hoebeke*, et al. The LAN of *Gleeson,* et al. can be modified/implemented into the multicast system of *Hoebeke*, et al. by

implementing a VLAN with MAC addressing in place of the virtual connections [Figure 3, VCC1 and VCC2] of *Hoebeke*, et al. and implementing the MVCC of *Hoebeke*, et al. [Figure 3, MVCC] with a single multicast VLAN. The motive to combine the LAN of *Gleeson,* et al. with the multicast system of *Hoebeke*, et al. is to allow the multicasting of information in a LAN environment at a switch instead of a router level, thereby decreasing costs by reducing the number of routers and, as stated by *Gleeson,* et al., [Column 5, Lines 26-40] to reduce multicast traffic.

Hoebeke, et al. and *Gleeson,* et al. do not disclose that the communication network is an 802.3 Ethernet Network. However, it is officially noted that the use of the 802.3 Ethernet Standard, particularly in association with MAC addresses [as described by *Gleeson,* et al. in Column 13 Lines 5-53] was well known in the pertinent art at the time of the invention. Thus, it would have been obvious to a person of ordinary skill in the pertinent art a the time of the invention to combine the use of 802.3 Ethernet with the system of *Hoebeke*, et al. as modified by *Gleeson,* et al. 802.3 Ethernet can be modified/implemented into the system of *Hoebeke*, et al. as modified by *Gleeson,* et al. by implementing 802.3 Ethernet in the communication network. Thus, the claimed elements of 802.3 Ethernet transmission and VPN Multicasting were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and one of ordinary skill in the pertinent art at the time of the invention could have predicted that the combination would have yielded the result of a communication network utilizing 802.3 Ethernet.

Hoebeke, et al. and *Gleeson,* et al. do not disclose that the communication network utilizes IEEE Standard 802.1D. However, it is officially noted that the use of the IEEE 802.1D standard, particularly in association with the implementation of spanning tree prorocol [as described by *Gleeson,* et al. in Column 16, Lines 55-67] was well known in the pertinent art at

the time of the invention. Thus, it would have been obvious to a person of ordinary skill in the pertinent art a the time of the invention to combine the use of IEEE Standard 802.1D with the system of *Hoebeke*, et al. as modified by *Gleeson,* et al. IEEE Standard 802.1D can be modified/implemented into the system of *Hoebeke*, et al. as modified by *Gleeson,* et al. by implementing IEEE Standard 802.1D in the communication network. Thus, the claimed elements of IEEE Standard 802.1D and VPN multicasting were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and one of ordinary skill in the pertinent art at the time of the invention could have predicted that the combination would have yielded the result of a communication network utilizing IEEE Standard 802.1D.

Hoebeke, et al. and *Gleeson,* et al. do not disclose that the communication network utilizes IEEE Standard 802.1Q. However, it is officially noted that the use of the IEEE 802.1Q standard, particularly in association with the use of VLANS [as described by *Gleeson,* et al. Column 3, Lines 1-14] was well known in the pertinent art at the time of the invention. Thus, it would have been obvious to a person of ordinary skill in the pertinent art a the time of the invention to combine the use of IEEE Standard 802.1Q with the system of *Hoebeke*, et al. as modified by *Gleeson,* et al. IEEE Standard 802.1Q can be modified/implemented into the system of *Hoebeke*, et al. as modified by *Gleeson,* et al. by implementing IEEE Standard 802.1Q on the communication network. Thus, the claimed elements of IEEE Standard 802.1Q and VPN multicasting were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and one of ordinary skill in the pertinent art at the time of the invention could have predicted that the combination would have yielded the result of a communication network utilizing IEEE Standard 802.1Q.

For claim 37, *Hoebeke*, et al. does not disclose but *Gleeson,* et al., from the same or similar field of endeavor, discloses the at least part of the broadcasting information routed to the central communication unit is inserted into a data frame having a routing and payload information, with the addressing information assigned in each case representing a component of the routing information of the data frame (Column 13, Lines 20-28). (The frame received has an associated MAC address and VLAN ID. The VLAN ID was used to route the packet and therefore represents a component of the frame's routing information [Column 13, Lines 5-18].) Thus it would have been obvious to include the addressing of *Gleeson,* et al. with the communications network of *Hoebeke*, et al. The addressing of *Gleeson,* et al. can be modified/implemented into the communications network of *Hoebeke*, et al. by having the central communication unit of *Hoebeke*, et al. receive the broadcast information via an addressed frame. Thus, the claimed elements of sending addressed multicast data and path combining multicasts were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and one of ordinary skill in the pertinent art at the time of the invention could have predicted that the combination would have yielded the result of a central communications unit that receives multicast information via an addressed frame.

Hoebeke, et al. and *Gleeson,* et al. do not disclose that the multicast broadcasting information is sent by means of an Ethernet frame. However, it is officially noted that the use of Ethernet, particularly in association with MAC addresses [as described by *Gleeson,* et al. in Column 13 Lines 5-53] was well known in the pertinent art at the time of the invention. Thus, it would have been obvious to a person of ordinary skill in the pertinent art a the time of the invention to combine the use of Ethernet with the system of *Hoebeke*, et al. as modified by *Gleeson,* et al. The use of Ethernet can be modified/implemented into the system of *Hoebeke*,

et al. as modified by *Gleeson,* et al. by sending frames to the central communication unit using an Ethernet broadcast. Thus, the claimed elements of Ethernet transmission and path combining multicasts were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and one of ordinary skill in the pertinent art at the time of the invention could have predicted that the combination would have yielded the result of a central communications unit that receives broadcasting information via an Ethernet frame.

For claim 38, *Hoebeke*, et al. does not disclose but *Gleeson,* et al., from the same or similar field of endeavor, discloses the assigned addressing information represents a multicast MAC address (Column 12, Lines 20-44). (The MAC address is assigned using the multicast IP address, and therefore is a multicast MAC address [Column 12, Lines 20-44]). Thus it would have been obvious to a person of ordinary skill in the pertinent art to use the multicast MAC addresses of *Gleeson,* et al. in the multicast system of *Hoebeke*, et al. The multicast MAC addresses of *Gleeson,* et al. can be modified/implemented into the multicast system of *Hoebeke*, et al. by subscribing the central communication unit to a multicast broadcast and having it receive the broadcasted information via the multicast MAC address. The motive to combine the multicast MAC addresses of *Gleeson,* et al. with the multicast system of *Hoebeke*, et al. is to allow the central communications unit to receive a multicast transmission form another device, thus allowing bandwidth to be conserved where a transmission is made to multiple central communication units simultaneously.

Hoebeke, et al. and *Gleeson,* et al. do not disclose that the multicast broadcasting information is sent by means of an Ethernet frame. However, it is officially noted that the use of Ethernet, particularly in association with MAC addresses [as described by *Gleeson,* et al. in Column 13 Lines 5-53] was well known in the pertinent art at the time of the invention. Thus, it

would have been obvious to a person of ordinary skill in the pertinent art a the time of the invention to combine the use of Ethernet with the system of *Hoebeke*, et al. as modified by *Gleeson,* et al. The use of Ethernet can be modified/implemented into the system of *Hoebeke*, et al. as modified by *Gleeson,* et al. by sending frames to the central communication unit using an Ethernet broadcast. Thus, the claimed elements of Ethernet transmission and path combining multicasts were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and one of ordinary skill in the pertinent art at the time of the invention could have predicted that the combination would have yielded the result of a central communications unit that receives broadcasting information via an Ethernet frame.

9. **Claims 40-42 and 45** are rejected under 35 U.S.C. 103(a) as being unpatentable over *Hoebeke*, et al. (US Pre-Grant Publication No. 2002/0010782 A1).

For claim 40, *Hoebeke*, et al. discloses a method for transmission of a broadcasting information (Abstract) routed to a central communication unit (Figure 3, NAS) to a subscriber connection (Figure 3, PC1 and PC2) assigned to a decentralized communication unit (Figure 3, CPNT) via a communication network, (Figure 3) comprising:

a. Providing a first virtual connection via the central communication unit to a subscriber via the communication network, (Figure 3, VCC1 and VCC2 and Page 2, Paragraph 0023) the first virtual connection adapted for transmission of an information for the subscriber connection (Figure 3 and Page 2, Paragraph 0023 - The virtual circuit connections VCC1 and VCC2 connect the corresponding PC1 and PC2 to the internet).

b. Providing a second virtual connection between the central unit and the decentralized communication unit (Figure 3, MVCC and Page 3, Paragraph 0030 – The multicast data channel [MVCC] connects the CPNT/decentralized communication unit to the NAS/central communications unit [See Fig. 3]).

c. A central communication unit adapted to check if at least part of the broadcasting information is to be transmitted to a number of the subscriber connections, the at least part of the broadcast information transmitted via the second virtual connection to the decentralized communication unit (Paragraph 0030 and Figure 3). (The multicast data destined for both PC1 and PC2 is forwarded to the CPNT only once across the MVCC, and only data multicast to both PC1 and PC2 is sent across the MVCC.)

d. A decentralized communication unit through which the transmitted information is duplicated and forwarded to the number of the subscriber connections. (Paragraph 0030). (The data is replicated in the CPNT terminal and sent to the destination subscribers.)

Hoebeke, et al. does not disclose that *a first controller* in the central communication unit is adapted to check if at least part of the broadcasting information is to be transmitted to a number of the subscriber connections, the at least part of the broadcast information transmitted via the second virtual connection to the decentralized communication unit and a *second controller* in the decentralized communication unit through which the transmitted information is duplicated and forwarded to the number of the subscriber connections. However, it is officially

noted that the use of controllers to carry out tasks within communication units was well known in the pertinent art at the time of the invention. Thus, it would have been obvious to a person of ordinary skill in the pertinent art to implement a first and second controller in the system of *Hoebeke*, et al. A first and second controller can be modified/implemented into the system of *Hoebeke*, et al. by implementing a first and second controller in the central and decentralized communication units respectively. Thus, the claimed elements of communications controllers and path combining multicasts were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and one of ordinary skill in the pertinent art at the time of the invention could have predicted that the combination would have yielded the result of a central and decentralized communications units with controllers.

For claim 41, *Hoebeke*, et al. discloses that the second controller is adapted so that duplicated information is inserted into the first virtual connection specific to the subscriber and is forwarded to the subscriber connection. (Paragraph 0030). (The data sent via the MVCC is then sent to the subscriber PC's via each PC's respective VCC [Paragraph 0030])

For claim 42, *Hoebeke*, et al. discloses:

a. The first controller is adapted for assigning addressing information identifying the number of subscriber connections of the at least part of the broadcasting information to be transmitted, (Figure 3 and Paragraph 0030) the information to be transmitted being transmitted with the assigned address information via the second virtual connection (Figure 3 and Paragraph 0030). (The NAS informs the CPNT which PC's have subscribed to the multicast. Then an identifier corresponding to the MVCC pipe is assigned to the data and it is transmitted to the CPMT, [It is inherent that in the use of an

ATM virtual channel, [Paragraph 0027] a virtual circuit identifier is assigned to the cell] where the identifier is used to determine which PC's are to receive the multicast and the CMPT then sends the multicast data to each specified PC. [Paragraph 0030])

b. The second controller adapted for duplicating the at least part of the broadcasting assigned addressing information based on the assigned addressing information and adapted for inserting into the first virtual connection the duplicated information (Paragraph 0030 – The CPNT duplicates and distributes the multicast to the PC's specified by the NAS by looking to the MVCC upon which it arrived and inserting the broadcast into the appropriate VCC's based on the assigned information.).

For claim 45, *Hoebeke*, et al. discloses:

a. A communication device which can be arranged in a communication network. (Figure 1, NAS)

b. A first virtual connection from a central communication unit via a communication network, via the decentralized communication unit to a subscriber connection unit, (Figure 3, VCC1 and VCC2 and Page 2, Paragraph 0023) the first virtual connection for transmission of broadcasting information for a subscriber connection, the broadcasting information routed to the central communication unit to a subscriber connection assigned to a decentralized communication unit via the communication network connection (Figure 3 and Page 2, Paragraph 0023 - The virtual circuit connections VCC1 and VCC2 connect the corresponding PC1 and PC2 to the internet via the centralized and decentralized communication units.).

c. A second virtual connection between the central and the a decentralized communication unit (Figure 3, MVCC and Page 3, Paragraph 0030 – The multicast data channel [MVCC] connects the CPNT/decentralized communication unit to the NAS/central communications unit [See Fig. 3]).

d. A central communication adapted to check if at least part of the broadcasting information is to be transmitted to a number of the subscriber connections, the at least part of the broadcast information transmitted via the second virtual connection to the decentralized communication unit (Paragraph 0030 and Figure 3). (The multicast data destined for both PC1 and PC2 is forwarded to the CPNT only once across the MVCC, and only data multicast to both PC1 and PC2 is sent across the MVCC.)

e. A decentralized communication unit through which the transmitted information is duplicated and forwarded to the number of the subscriber connections. (The data is replicated in the CPNT terminal and sent to the destination subscribers.)

Hoebeke, et al. does not disclose *a first controller* in the central communication unit and a *second controller* in the decentralized communication unit adapted to perform the tasks of each unit respectively. However, it is officially noted that the use of controllers to carry out tasks within communication units was well known in the pertinent art at the time of the invention. Thus, it would have been obvious to a person of ordinary skill in the pertinent art to implement a first and second controller in the system of *Hoebeke*, et al. A first and second controller can be modified/implemented into the system of *Hoebeke*, et al. by implementing a first and second

controller in the central and decentralized communication units respectively. Thus, the claimed elements of communications controllers and path combining multicasts were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and one of ordinary skill in the pertinent art at the time of the invention could have predicted that the combination would have yielded the result of a central and decentralized communications units with controllers.

Allowable Subject Matter

10. Claims 31 and 44 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

11. The following prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

a. *Ding* (US Pre-Grant Publication 2006/0146823)

b. *Virgile* (US Patent No. 5,898,686 A)

c. *Joo*, et al. (US Patent No. 5,963,552 A)

d. *Hoebeke*, et al. (US Pre-Grant Publication No. 2002/0010782)

e. *Pitcher*, et al. (US Patent No. 6,370,142 B1)

f. *Kobayashi* (US Patent No. 6,457,059 B1)

g. *Sheun*, et al. (US Pre-Grant Publication No. 2007/0116014 A1)

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher M. Crutchfield whose telephone number is (571) 270-3989. The examiner can normally be reached on Monday through Friday 7:30AM to 5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Garber can be reached on (571) 272-2194. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christopher M. Crutchfield/
Examiner, Art Unit 4144
4/30/2008

/Quan-Zhen Wang/
Primary Examiner, Art Unit 4144